LIST OF CONTENTS

Vol. 25, No. 1

V. Soroker and A. Rafaeli	1	Multi-signal transduction of the pheromonotropic response by pheromone gland incubations of *Helicoverpa armigera*
Susan P. Rohrer, Elizabeth T. Birzin, Scott D. Costa, Joseph P. Arena, Edward C. Hayes and James M. Schaeffer	11	Identification of neuron-specific ivermectin binding sites in *Drosophila melanogaster* and *Schistocerca americana*
Wen-Long Cho, Marianna Z. Kapitskaya and Alexander S. Raikhel	19	Mosquito ecdysteroid receptor: analysis of the cDNA and expression during vitellogenesis
T. L. Hopkins, T. D. Morgan, D. D. Mueller, K. B. Tomer and K. J. Kramer	29	Identification of catecholamine β-glucosides in the hemolymph of the tobacco hornworm, *Manduca sexta* (L.), during development
Nianbia Fang, Peter E. A. Teal, Robert E. Doolittle and James H. Tumlinson	39	Biosynthesis of conjugated olefinic systems in the sex pheromone gland of female tobacco hornworm moths, *Manduca sexta* (L.)
Michael J. Lee and John H. Anstee	49	Endoproteases from the midgut of larval *Spodoptera littoralis* include a chymotrypsin-like enzyme with an extended binding site
Michael J. Lee and John H. Anstee	63	Characterization of midgut exopeptidase activity from larval *Spodoptera littoralis*
P. B. Koch and N. Kaufmann	73	Pattern specific melanin synthesis and DOPA decarboxylase activity in a butterfly wing of *Precis coenia* Hübner
Peter S. Whitton, Russell A. Nicholson, Michael F. Bell and Robin H. C. Strang	83	Biosynthesis of taurine in tissues of the locust (*Schistocerca americana gregaria*) and the effect of physiological and toxicological stresses on biosynthetic rate of this amino acid
Chien-Fu Hung, Hataichanoke Prapaipong, May R. Berenbaum and Mary A. Schuler	89	Differential induction of cytochrome P450 transcripts in *Papilio polyxenes* by linear and angular furanocoumarins
Rolf Ziegler, Leslie A. Willingham, Scott J. Sanders, Lisa Tamen-Smith and Kozo Tsuchida	101	Apolipophorin-III and adipokinetic hormone in lipid metabolism of larval *Manduca sexta*
Arthur Retnakaran, Kiyoshi Hiruma, Subba Reddy Palli and Lynn M. Riddiford	109	Molecular analysis of the mode of action of RH-5992, a lepidopteran-specific, non-steroidal ecdysteroid agonist
Bill F. McCutchen, Andras Szekacs, Tien L. Huang, Takahiro Shiotsuki and Bruce D. Hammock	119	Characterization of a spectrophotometric assay for juvenile hormone esterase
Elfriede Simmerl, Mireille Schäfer and Ulrich Schäfer	127	Structure and regulation of a gene cluster for male accessory gland transcripts in *Drosophila melanogaster*
Algimantas P. Valaitis	139	Gypsy moth midgut proteinases: purification and characterization of luminal trypsin, elastase and the brush border membrane leucine aminopeptidase
Erratum	151	
Forthcoming Papers	I	
Contents of *Journal of Insect Physiology*	III	
Announcement	V	

Vol. 25, No. 2

Mini-Review
Svend Olav Andersen, Peter Højrup and Peter Roepstorff 153 Insect cuticular proteins

Svend Olav Andersen, Kate Rafn, Thomas N. Krogh, Peter Højrup and Peter Roepstorff 177 Comparison of larval and pupal cuticular proteins in *Tenebrio molitor*

Terrie L. Finston, Paul D. N. Hebert and Robert B. Foottit 189 Genome size variation in aphids

H. Noguchi, Y. Hayakawa and R. G. H. Downer 197 Elevation of dopamine levels in parasitized insect larvae

Sean Coleman, Brent Drähn, Greg Petersen, Javor Stolorov and Kevin Kraus 203 A *Drosophila* male accessory gland protein that is a member of the serpin superfamily of proteinase inhibitors is transferred to females during mating

Estela L. Arrese, Bertha I. Rojas-Rivas and Michael A. Wells 209 Purification and properties of glycogen phosphorylase from the fat body of larval *Manduca sexta*

Joy J. Winzerling, Patricia Nez, Jerker Porath and John H. Law 217 Rapid and efficient isolation of transferrin and ferritin from *Manduca sexta*

Alan S. Bowman, John R. Sauer, Paul A. Neese and Jack W. Dillwith 225 Origin of arachidonic acid in the salivary glands of the lone star tick, *Amblyomma americanum*

C. Royer, P. Porcheron, P. Pradelles, L. Kerhoas, J. Einhorn and B. Mauchamp 235 Rapid and specific enzyme immunoassay for makisterone A

Carolina V. Barillas-Mury, Fernando G. Noriega and Michael A. Wells 241 Early trypsin activity is part of the signal transduction system that activates transcription of the late trypsin gene in the midgut of the mosquito, *Aedes aegypti*

Toru Arakawa 247 Superoxide generative reaction in insect haemolymph and its mimic model system with surfactants *in vitro*

Bhuvana Gopalakrishnan, Subbaratnam Muthukrishnan and Karl J. Kramer 255 Baculovirus-mediated expression of a *Manduca sexta* chitinase gene: properties of the recombinant protein

Veeresh L. Sevala, K. G. Davey and Glenn D. Prestwich 267 Photoaffinity labeling and characterization of a juvenile hormone binding protein in the membranes of follicle cells of *Locusta migratoria*

Takashi Tomita and Jeffrey G. Scott 275 cDNA and deduced protein sequence of *CYP6D1:* the putative gene for a cytochrome P450 responsible for pyrethroid resistance in house fly

Michael R. Kanost, Sarvamangala V. Prasad, Yanling Huang and Elizabeth Willott 285 Regulation of serpin gene-1 in *Manduca sexta*

L. E. King, V. M. Sevala and B. G. Loughton 293 The effect of substitutions at position three on the binding and bioactivity of proctolin in locust hindgut and oviduct

Forthcoming Papers I

Contents of *Journal of Insect Physiology* III

Vol. 25, No. 3

Adriana M. Klinkowstrom, Walter R. Terra and Clélia Ferreira 303 Midgut dipeptidases from *Rhynchosciara americana* (Diptera) larvae. Properties of soluble and membrane-bound forms

H. Franciosa and J. B. Bergé 311 Glutathione S-transferases in housefly (*Musca domestica*): location of GST-1 and GST-2 families

Thomas N. Krogh, Lene Skou, Peter Roepstorff, Svend Olav Andersen and Peter Højrup 319 Primary structure of proteins from the wing cuticle of the migratory locust, *Locusta migratoria*

Vivian Ngan, Guido Vacano, Ursula Bond and Tharappel James 331 Characterization of a new class of transcribed repetitive DNA sequence which also exists as a hybrid with HP1 mRNA; potential for site-specific recombination in *Drosophila melanogaster*

Michael L. Kirby and James A. Ottea 347 Multiple mechanisms for enhancement of glutathione *S*-transferase activities in *Spodoptera frugiperda* (Lepidoptera: Noctuidae)

Ursula Kollberg, Brigitte Obermaier, Harry Hirsch, Gisela Kelber and Peter Wolbert 355 Expression cloning and characterization of a pupal cuticle protein cDNA of *Galleria mellonella* L.

Pablo Wappner, Karl J. Kramer, Theodore L. Hopkins, Matthew Merritt, Jacob Schaefer and Luis A. Quesada-Allué 365 *White pupa*: a *Ceratitis capitata* mutant lacking catecholamines for tanning the puparium

Katherine A. Johnston, Michael J. Lee, Clare Brough, Vaughan A. Hilder, Angharad M. R. Gatehouse and John A. Gatehouse 375 Protease activities in the larval midgut of *Heliothis virescens*: evidence for trypsin and chymotrypsin-like enzymes

Masao Sugiyama, Hisato Kuniyoshi, Eiji Kotani, Kiyoko Taniai, Keiko Kadono-Okuda, Yusuke Kato, Masanori Yamamoto, Michio Shimabukuro, Subrata Chowdhury, Jinhua Xu, Su Kyung Choi, Hiroshi Kataoka, Akinori Suzuki and Minoru Yamakawa 385 Characterization of a *Bombyx mori* cDNA encoding a novel member of the attacin family of insect antibacterial proteins

Hideaki Kobayashi, Shoichiro Kurata and Shunji Natori 393 Purification of a 200 kDA protein-binding protein from the fat body of *Sarcophaga peregrina* larvae

Guido C. Paesen and George M. Happ 401 The B proteins secreted by the tubular accessory sex glands of the male mealworm beetle, *Tenebrio molitor*, have sequence similarity to moth pheromone-binding proteins

Forthcoming Papers I

Contents of *Journal of Insect Physiology* III

Vol. 25, No. 4

Stephen F. Garczynski and Michael J. Adang 409 *Bacillus thuringiensis* CryIA(c) δ-endotoxin binding aminopeptidase in the *Manduca sexta* midgut has a glycosyl-phosphatidylinositol anchor

Beatriz P. Jordão, Walter R. Terra and Clélia Ferreira 417 Chemical determinations in microvillar membranes purified from brush-borders isolated from the larval midgut of one Coleoptera and two Diptera species

Noelle A. Granger, William P. Janzen and Richard Ebersohl 427 Biosynthetic products of the corpus allatum of the tobacco hornworm, *Manduca sexta*

Alan S. Bowman, Jack W. Dillwith, Robin D. Madden and John R. Sauer 441 Uptake, incorporation and redistribution of arachidonic acid in isolated salivary glands of the lone star tick

Kirk W. Deitsch, Jeng-Shong Chen and Alexander S. Raikhel 449 Indirect control of yolk protein genes by 20-hydroxyecdysone in the fat body of the mosquito, *Aedes aegypti*

Mark J. Snyder, Jennifer K. Walding and René Feyereisen 455 Glutathione *S*-transferases from larval *Manduca sexta* midgut: sequence of two cDNAs and enzyme induction

Peter W. K. Ma and Wendell L. Roelofs 467 Calcium involvement in the stimulation of sex pheromone production by PBAN in the European corn borer, *Ostrinia nubilalis* (Lepidoptera: Pyralidae)

David R. O'Reilly, Thomas J. Kelly, Edward P. Masler, Belgaum S. Thyagaraja, R. Moy Robson, Terence C. Shaw and Lois K. Miller 475 Overexpression of *Bombyx mori* prothoracicocotropic hormone using baculovirus vectors

Carlos P. Silva and Walter R. Terra 487 An α-glucosidase from perimicrovillar membranes of *Dysdercus peruvianus* (Hemiptera: Pyrrhocoridae) midgut cells. Purification and properties

L. E. King, Q. Ding, G. D. Prestwich and S. S. Tobe 495 The characterization of a haemolymph methyl farnesoate binding protein and the assessment of methyl farnesoate metabolism by the haemolymph and other tissues from *Procambrus clarkii*

Yang Kang, Peter C. Kulakosky, Rik Van Antwerpen and John H. Law 503 Sequestration of insecticyanin, a blue hemolymph protein, into the egg of the hawkmoth *Manduca sexta*. Evidence for receptor-mediated endocytosis

Bengt Åsling, Mitchell S. Dushay and Dan Hultmark 511 Identification of early genes in the *Drosophila* immune response by PCR-based differential display: the *Attacin A* gene and the evolution of attacin-like proteins

Suresh K. Prabhakaran and Shripat T. Kamble 519 Purification and characterization of an esterase isozyme from insecticide resistant and susceptible strains of German cockroach, *Blattella germanica* (L.)

Ulrike Kaltenhauser, Josef Kellermann, Kerstin Andersson, Friedrich Lottspeich and H. Willi Honegger 525 Purification and partial characterization of bursicon, a cuticle sclerotizing neuropeptide in insects, from *Tenebrio molitor*

Rapid Communication
Jeff D. Reagan 535 Functional expression of a diuretic hormone receptor in baculovirus-infected insect cells: evidence suggesting that the N-terminal region of diuretic hormone is associated with receptor activation

Forthcoming Papers I

Contents of *Journal of Insect Physiology* III

Vol. 25, No. 5

Mini-Review
David R. O'Reilly 541 Baculovirus-encoded ecdysteroid UDP-glucosyltransferases

Alasdair J. Nisbet, A. Jennifer Mordue and William Mordue 551 Detection of [22,23-$^3H_2$]dihydroazadirachtin binding sites on *Schistocerca gregaria* (Forskål) testes membranes

Michel Nogaro, Driss Radallah, Gilles Guillon and Bernard Fournier 559 HPLC analysis of inositol phosphate isomers induced by neuroparsin in rectal epithelial cells of the African locust: role of external calcium

Rolf Ziegler, Diane L. Engler and Norman T. Davis 569 Biotin-containing proteins of the insect nervous system, a potential source of interference with immunocytochemical localization procedures

Toyoshi Yoshiga and Sumio Tojo 575 Purification and characterization of four biliverdin-binding proteins from larval haemolymph of the common cutworm, *Spodoptera litura*

Vikram N. Vakharia, Ashok K. Raina, Timothy G. Kingan and Thomas G. Kempe 583 Synthetic pheromone biosynthesis activating neuropeptide gene expressed in a baculovirus expression system

Qisheng Song and Lawrence I. Gilbert 591 Multiple phosphorylation of ribosomal protein S6 and specific protein synthesis are required for prothoracicotropic hormone-stimulated ecdysteroid biosynthesis in the prothoracic glands of *Manduca sexta*

P. Varricchio, G. Gargiulo, F. Graziani, A. Manzi, F. Pennacchio, M. Digilio, E. Tremblay and C. Malva 603 Characterization of *Aphidius ervi* (Hymenoptera, Braconidae) ribosomal genes and identification of site-specific insertion elements belonging to the non-LTR retrotransposon family

Pin-Shern Chen, Tsing-Cheng Wang and Gu-Gang Chang 613 Chemical modification of glutathione *S*-transferase from C6/36, an *Aedes albopictus* cell line

Joseph A. Argentine and Anthony A. James 621 Characterization of a salivary gland-specific esterase in the vector mosquito, *Aedes aegypti*

Tracey J. Webb and Hilary Hurd 631 Microsomal juvenile hormone binding proteins in the follicle cells of *Tenebrio molitor*

Hiroaki Noda, Nobuhiko Nakashima and Mika Koizumi 639 Phylogenetic position of yeast-like symbiotes of rice planthoppers based on partial 18S rDNA sequences

Richard R. McKay, Liqing Zhu and Randall D. Shortridge 647 A *Drosophila* gene that encodes a member of the protein disulfide isomerase/phospholipase C-α family

G. Fabrias, M. Barrot and F. Camps 655 Control of the sex pheromone biosynthetic pathway in *Thaumetopoea pityocampa* by the pheromone biosynthesis activating neuropeptide

Forthcoming Papers I

Contents of *Journal of Insect Physiology* III

Vol. 25, No. 6

BIOSYNTHESIS AND CATABOLISM OF INSECT HORMONES AND PHEROMONES

David A. Carlson v Foreword

Arnold De Loof, Dany Bylemans, Liliane Schoofs, Ine Janssen, Kurt Spittaels, Jozef Vanden Broeck, Roger Huybrechts, Dov Borovsky, Yue-Jin Hua, Jan Koolman and Stacia Sower 661 Folliculostatins, gonadotropins and a model for control of growth in the grey fleshfly, *Neobellieria* (*Sarcophaga*) *bullata*

Dusan Zitnan, Timothy G. Kingan and Nancy E. Beckage 669 Parasitism-induced accumulation of FMRFamide-like peptides in the gut innervation and endocrine cells of *Manduca sexta*

James T. Warren, Robert Rybczynski and Lawrence I. Gilbert 679 Stereospecific, mechanism-based, suicide inhibition of a cytochrome P_{450} involved in ecdysteroid biosynthesis in the prothoracic glands of *Manduca sexta*

Subba R. Palli, Sardar S. Sohi, Barbara J. Cook, Dave Lambert, Tim R. Ladd and Arthur Retnakaran 697 Analysis of ecdysteroid action in *Malacosoma disstria* cells: cloning selected regions of E75- and MHR3-like genes

M. F. Feldlaufer, G. F. Weirich, R. B. Imberski and J. A. Svoboda 709 Ecdysteroid production in *Drosophila melanogaster* reared on defined diets

J. F. Andersen, M. Ceruso, G. C. Unnithan, E. Kuwano, G. D. Prestwich and R. Feyereisen 713 Photoaffinity labeling of methyl farnesoate epoxidase in cockroach corpora allata

Franz Engelmann 721 The juvenile hormone receptor of the cockroach *Leucophaea maderae*

Kazushige Touhara, Bryony C. Bonning, Bruce D. Hammock and Glenn D. Prestwich 727 Action of juvenile hormone (JH) esterase on the JH–JH binding protein complex. An *in vitro* model of JH metabolism in a caterpillar

Alan S. Bowman, John R. Sauer, Kuichun Zhu and Jack W. Dillwith 735 Biosynthesis of salivary prostaglandins in the lone star tick, *Amblyomma americanum*

Gadelhak G. Gadelhak, Venkat K. Pedibhotla and David W. Stanley-Samuelson 743 Eicosanoid biosynthesis by hemocytes from the tobacco hornworm, *Manduca sexta*

Gary J. Blomquist, Julie A. Tillman, James R. Reed, Peide Gu, Désirée Vanderwel, Seongwon Choi and Ronald C. Reitz 751 Regulation of enzymatic activity involved in sex pheromone production in the housefly, *Musca domestica*

Forthcoming Papers I

Contents of *Journal of Insect Physiology* III

Vol. 25, No. 7

Michael R. Kanost, Kimberly A. Sparks and Michael A. Wells 759 Isolation and characterization of apolipophorin-III from the giant water bug (*Lethocerus medius*)

A. M. Peterson, G. J. P. Fernando and M. A. Wells 765 Purification, characterization and cDNA sequence of an alkaline chymotrypsin from the midgut of *Manduca sexta*

A. V. Glinka, R. P. Braun, J. P. Edwards and G. R. Wyatt 775 The use of a juvenile hormone binding protein for the quantitative assay of juvenile hormone

Eliann Egaas, Morten Sandvik, Nina O. Svendsen and Janneche U. Skaare 783 The separation and identification of glutathione *S*-transferase subunits from *Orthosia gothica*

Jane E. Symonds, John B. Gibson, Ann Verona Wilks and Tomasz M. Wilanowski 789 Molecular analysis of a *Drosophila melanogaster* sn-glycerol-3-phosphate dehydrogenase allozyme variant that has cold labile activity

Thorsten Burmester and Klaus Scheller 799 Ecdysteroid-mediated uptake of arylphorin by larval fat bodies of *Calliphora vicina*: involvement and developmental regulation of arylphorin binding proteins

Thomas W. Sappington, Alan R. Hays and Alexander S. Raikhel 807 Mosquito vitellogenin receptor: purification, developmental and biochemical characterization

Sumiharu Nagaoka, Yasushi Sugimoto, Masaki Yara and Katsumi Koga 819 Occurrence and distribution of aldolase isozymes during embryonic and post-embryonic development of the silkworm *Bombyx mori*

Ada Rafaeli and Carina Gileadi 827 Modulation of the PBAN-stimulated pheromonotropic activity in *Helicoverpa armigera*

Sandro R. Marana, Walter R. Terra and Clélia Ferreira 835 Midgut β-D-glucosidases from *Abracris flavolineata* (Orthoptera: Acrididae). Physical properties, substrate specificities and function

Haruhiko Fujiwara, Marek Jindra, Richard Newitt, Subba Reddy Palli, Kiyoshi Hiruma and Lynn M. Riddiford 845 Cloning of an ecdysone receptor homolog from *Manduca sexta* and the developmental profile of its mRNA in wings

Luc Swevers, Joel R. Drevet, Martine D. Lunke and Kostas Iatrou 857 The silkmoth homolog of the *Drosophila* ecdysone receptor (B1 isoform): cloning and analysis of expression during follicular cell differentiation

Rapid Communication
Carl Lowenberger, Philippe Bulet, Maurice Charlet, Charles Hetru, Bradley Hodgeman, Bruce M. Christensen and Jules A. Hoffmann 867 Insect immunity: isolation of three novel inducible antibacterial defensins from the vector mosquito, *Aedes aegypti*

Forthcoming Papers I

Contents of *Journal of Insect Physiology* III

Vol. 25, No. 8

Rapid Communication
Jeff D. Reagan 875 Molecular cloning of a putative Na^+-K^+-$2Cl^-$ cotransporter from the Malpighian tubules of the tobacco hornworm, *Manduca sexta*

Mini-Review
Vincent C. Henrich and Neil E. Brown 881 Insect nuclear receptors: a developmental and comparative perspective

Shaojiu Wang, Felix Young and Donal A. Hickey 899 Genomic organization and expression of a trypsin gene from the spruce budworm, *Choristoneura fumiferana*

Miyuki Yussa, Carlos Eloy Vanário Alonso and Eliana Abdelhay 909 Highly polymorphic repetitive sequences in *Rhynchosciara americana* genome

Sotiria P. Thymianou, George Chrysanthis, Katerina A. Petropoulou and Anastassios C. Mintzas 915 Developmentally regulated biosynthesis of two male specific serum polypeptides in the fat body of the medfly *Ceratitis capitata*

Jinhua Xu, Masahiro Nishijima, Yoshiaki Kono, Kiyoko Taniai, Yusuke Kato, Keiko Kadono-Okuda, Masanori Yamamoto, Michio Shimabukuro, Subrata Chowdhury, Su Kyung Choi and Minoru Yamakawa 921 Identification of a hemocyte membrane protein of the silkworm, *Bombyx mori*, which specifically binds to bacterial lipopolysaccharide

Ashok Raina, Lewis Pannell, Jan Kochansky and Howard Jaffe 929 Primary structure of a novel neuropeptide isolated from the corpora cardiaca of periodical cicadas having adipokinetic and hypertrehalosemic activities

Heather L. Gindling, Gerald A. Rosenthal and Douglas L. Dahlman 933 Purification of L-arginine kinase from the tobacco budworm, *Heliothis virescens* [Noctuidae] and its function in L-canavanine detoxification

Patricia Romans, Zhijian Tu, Zhaoxi Ke and Henry H. Hagedorn 939 Analysis of a vitellogenin gene of the mosquito, *Aedes aegypti* and comparisons to vitellogenins from other organisms

B. Moses Okot-Kotber and Olusola A. Adeyeye 959 The influence of dietary L-azetidine-2-carboxylic acid on catecholamine levels in the hemolymph and cuticle of the corn earworm, *Helicoverpa zea*

Corrigendum 967

Forthcoming Papers I

Contents of *Journal of Insect Physiology* III

Vol. 25, No. 9

Rapid Communication
J. M. Jarmey, G. A. Riding, R. D. Pearson, R. V. McKenna and P. Willadsen 969 Carboxydipeptidase from *Boophilus microplus*: a "concealed" antigen with similarity to angiotensin-converting enzyme

Jun Yang, Makoto Kimura, Eiichi Kuwano and Koichi Suzuki 975 Isolation of L(+)-methionine sulfoxide related to diapause induction in the silkworm, *Bombyx mori*

Thorsten Burmester and Klaus Scheller 981 Complete cDNA-sequence of the receptor responsible for arylphorin uptake by the larval fat body of the blowfly, *Calliphora vicina*

Karen J. Krapcho, Robert M. Kral Jr, Bradford C. Vanwagenen, Kathryn G. Eppler and Terry K. Morgan 991 Characterization and cloning of insecticidal peptides from the primitive weaving spider *Diguetia canities*

Wang Xiao-Ping and Andrew A. Hobbs 1001 Isolation and sequence analysis of a cDNA clone for a pyrethroid inducible cytochrome P450 from *Helicoverpa armigera*

Paulo E. M. Ribolla and Antonio G. de Bianchi 1011 Processing of procathepsin from *Musca domestica* eggs

Hong Li, Houle Wang, Murray Hackett and David A. Schooley 1019 The structure of dolichols isolated from *Manduca sexta* larvae

Venkat K. Pedibhotla, G. Sarath, John R. Sauer and David W. Stanley-Samuelson 1027 Prostaglandin biosynthesis and subcellular localization of prostaglandin H synthase activity in the lone star tick, *Amblyomma americanum*

Dominique Michaud, Nathalie Bernier-Vadnais, Serge Overney and Serge Yelle 1041 Constitutive expression of digestive cysteine proteinase forms during development of the Colorado potato beetle, *Leptinotarsa decemlineata* Say (Coleoptera: Chrysomelidae)

Thomas Roeder, Ralf Voßfeldt and Michael Gewecke 1049 The solubilized locust neuronal ^{3}H-mianserin binding site, a histamine H_1-like receptor molecule

Shogo Matsumoto, Rika Ozawa, Kyoichi Uchiumi, Masaaki Kurihara and Takashi Mitsui 1055 Intracellular signal transduction of PBAN action in the common cutworm, *Spodoptera litura*: effects of pharmacological agents on sex pheromone production *in vitro*

Forthcoming Papers I

Contents of *Journal of Insect Physiology* III

Vol. 25, No. 10

Rapid Communication
Mark Q. Benedict, Cristina E. Salazar and Frank H. Collins 1061 A new dominant selectable marker for genetic transformation; *Hsp*70-*opd*

Mini-Review
Karl J. Kramer, Theodore L. Hopkins and Jacob Schaefer 1067 Applications of solids NMR to the analysis of insect sclerotized structures

Petr Kopáček, Christoph Weise and Peter Götz 1081 The prophenoloxidase from the wax moth *Galleria mellonella*: purification and characterization of the proenzyme

H. Jiang, A. B. Mulnix and M. R. Kanost 1093 Expression and characterization of recombinant *Manduca sexta* serpin-1B and site-directed mutants that change its inhibitory selectivity

R. E. Milne, A. S. D. Pang and H. Kaplan 1101 A protein complex from *Choristoneura fumiferana* gut-juice involved in the precipitation of δ-endotoxin from *Bacillus thuringiensis* subsp. sotto

Abdelrahim A. Hunaiti, Ahmed M. Elbetieha, Motassim A. Obeidat and Wajih M. Owais 1115 Developmental studies on *Drosophila melanogaster* glutathione S-transferase and its induction by oxadiazolone

Atsushi Ohnishi, Yoichi Hayakawa, Yusuke Matsuda, Kil-Won Kwon, Tsuneo A. Takahashi and Sadayoshi Sekiguchi 1121 Growth-blocking peptide titer during larval development of parasitized and cold-stressed armyworm

Kun Yan Zhu and J. Marshall Clark 1129 Cloning and sequencing of a cDNA encoding acetylcholinesterase in Colorado potato beetle, *Leptinotarsa decemlineata* (Say)

Yvan Pelletier and Catherine L. Clark 1139 Haemolymph plasma composition of the Essig's lupine aphid, *Macrosiphum albifrons* Essig (Homoptera: Aphididae)

Algimantas P. Valaitis, Mi Kyong Lee, Francis Rajamohan and Donald H. Dean 1143 Brush border membrane aminopeptidase-N in the midgut of the gypsy moth serves as the receptor for the CryiA(c) δ-endotoxin of *Bacillus thuringiensis*

Forthcoming Papers I

Contents of *Journal of Insect Physiology* III